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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,393	12/23/1999	JAN STENSBORG	0459-0386P	7348

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EXAMINER	
JACKSON, MONIQUE R	
ART UNIT	**PAPER NUMBER**
1773	20

DATE MAILED: 12/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/471,393	STENSBORG ET AL.	
	Examiner	Art Unit	
	Monique R Jackson	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-72* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *19* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendment filed 10/1/02 has been entered. Claims 36-72 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections

3. Claims 36, 53 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Wolf (USPN 3,937,852) for the reasons recited in the prior office action and restated below.

4. Wolf teaches a process for preparing a baked cracker which comprises taking a quantity of bakable cracker dough, (*first layer of non-metallic material*) having a rubbery consistency which tends to resume its original shape when free of compressive forces, placing the dough between two metal plates – a top and a bottom plate, preferably aluminum (*holding metal substrate*), wherein an appropriate design or surface texture may be embossed or engraved on the surfaces to be in contact with the dough (*object comprising a surface so as to change surface properties of the first layer of non-metallic material*) and the dough is baked while pressed between the two plates to provide a baked cracker with the desired shape or **texture corresponding to the textured surface of the plate(s)** (*replicated surface relief*) (Abstract; Col. 5, lines 54-60; Col. 6, lines 34-37; Figure 2.) Hence, given the broad language of the above claims, the invention taught by Wolf meets the limitation of the instant claims, wherein the bakable dough is a non-metallic material, the metal plate(s) are holding metal substrate(s), and the baked cracker with a surface texture produced by the embossed or engraved design of the

plates pressed against the dough is a replicated surface relief that would be inherently stable over a period of at least twelve months given the shelf life of a cracker.

5. Claims 36-37, 39-49, 53-58, and 60-64 are rejected under 35 U.S.C. 102(e) as being anticipated by Choquette et al (USPN 5,861,113) for the reasons recited in a previous office action and restated below, wherein the Examiner takes the position that the embossed diffractive optic pattern contained in the cured plastic material taught by Choquette et al is inherently stable over a period of at least 12 months given that the plastic material is cured or hardened prior to removing the patterned master from it.

Choquette et al teach a method for producing a plastic material, preferably a cured epoxy resin, containing a diffractive optical pattern therein including embossing a curable plastic material, preferably on a substrate, with a diffractive optic pattern by pressing the curable plastic material against a master having a thin layer of fluorinated silane as a release layer (Abstract; Col. 2, line 62 – Col. 3, line 8.) The substrate for the product as well as the master and submaster is generally a glass substrate, however, it may also be selected from ceramic, polymer, or metal material (*equivalent to "bearing" metal substrate*; Col. 3, lines 15-19 and 56-58; Col. 5, lines 12-15.) In one embodiment, Choquette et al teach that a thin metal layer may be adhered to the cured plastic layer of a product by coating the submaster with the metal layer which is then transferred to the product during the pressing or stamping process (*hence the metal layer substantially conforms to the relief image of the cured resin layer*) (Col. 5, lines 28-35.) A polymer layer may then be spun over the metallized diffraction grating (Col. 5, lines 36-38.) Choquette et al also teach that in making a submaster of a master diffractive optic pattern, the

submaster may be formed by the embossing process by applying the curable plastic to a substrate, pressing the master diffractive optic pattern onto the plastic to emboss the pattern therein, curing the plastic and providing a metal layer over the embossed pattern on the cured plastic (Col. 3, lines 19-43-51.) Then the thin fluorinated silane release layer (*equivalent to lacquer*) is provided on the metal layer by coating with a fluorinated silane resulting in a new master (Col. 3, lines 51-61.) Choquette et al teach that the metal layer is provided as a thin metal coating to avoid filling in or significantly diluting the shape of the diffractive pattern and is preferably aluminum formed by vapor deposition (Col. 3, lines 19-28.) Similarly, a layer of semiconductor material, such as Si or inorganic glass such as SiO or SiO_2 may be used as a layer, which would inherently be "substantially transparent" and have a different refractive index from the cured epoxy resin (Col. 3, lines 29-31.) The thickness of the fluorinated silane layer ranges from monolayer to up to about 1000Å depending upon the nature of the diffraction grating pattern and the presence or absence of a metal layer and is preferably provided by vapor deposition, wherein it is noted that an absence of the metal layer would result in a thin vapor deposited fluorinated silane layer, which would inherently be "substantially transparent", coated directly on the cured epoxy resin which inherently has a different refractive index (Col. 3, lines 59-67.) Though Croquette et al do not specifically teach the thickness range of the resin layer to be embossed, Croquette et al do provide examples wherein the thickness of the unmodulated portion of the epoxy grating is 17μm thick which reads on the instantly claimed range (Col. 8, lines 15-19.)

6. Claims 38, 47-52, 59, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choquette et al in view of Mallik et al (USPN 5,085,514) and in further view of the admitted prior art for the reasons recited in a previous office action and restated below, wherein the surface relief taught by Choquette et al would be stable over a period of at least 12 months given that the plastic is the same material as instantly claimed.

The teachings of Choquette et al are discussed above. Choquette et al do not specifically teach that the epoxy resin layer to be embossed has a range thickness as instantly claimed in Claims 47-51. However, it would have been obvious to one having ordinary skill in the art to utilize routine experimentation to determine the optimum resin layer thickness to utilize based on the desired diffraction pattern to be embossed given that the resin layer would need to be of sufficient thickness to hold the entire embossed pattern desired for a particular end use. Further, Choquette et al only disclose a stamping process to produce the relief image and not a rolling process as in instant claim 52, however, it is well known in the art that a rolling process is an equivalent method to a stamping process wherein the rolling process is utilized to continuously produce relief images on a continuous substrate for continuous production of holographic products as opposed to the discontinuous stamping process, and would have been obvious to one having ordinary skill in the art based on the desired production requirements of a particular end product. Choquette et al further teach that the invention can be used to provide diffractive optics on a wide variety of substrates in an inexpensive and reproducible manner and can be used in place of more expensive and non-reproducible holographic or lithographic means (Col. 5, lines 39-48.) Choquette et al do not teach that the substrate containing the holographic image may be a container or may include a colored layer on the surface of the substrate prior to coating with the

embossing resin. However, the use of the holographic images over printed or decorative coatings on substrates to provide tamper-proof and/or decorative products is well known and conventional in the art as taught by Mallik et al and would have been obvious to one having ordinary skill in the art based on the desired end use of the imaged product. Further, the use of holographically-imaged substrates to fabricate containers or any other end products wherein a holographic image would be desirable is well known and conventional in the art as taught by the admitted prior art and it would have been obvious to one skilled in the art at the time of the invention to produce a container product or any other desired imaged product utilizing the method taught by Choquette et al.

7. Claims 36-37, 39-40, 46, 52-57, and 64-67 are rejected under 35 U.S.C. 102(e) as being anticipated by Schaefer et al (USPN 6,006,415) for the reasons recited in a previous office action and restated below, wherein the Examiner takes the position that holographic image taught by Schaefer et al produced by rolling or stamping the polyester coating on the aluminum cans (*food or beverage containers*) to produce an extremely attractive can wherein a combination of decorative coatings (colored print layer) may be applied to the surface of the can in combination with the holographic image would inherently be stable over a period as instantly claimed given that the embossed plastic material is the same plastic as utilized in the instant invention.

Schaefer et al teach a method of impressing holographic images or holograms or diffraction images into metallic surfaces such as aluminum cans (*equivalent to "bearing" metal substrate and container*) (Abstract; Col. 1, lines 13-15.) Schaefer et al teach an embodiment wherein cans, can ends or other products that may be decorated in accordance with the invention

may also have a thin coating of polymer such as polyester on the surface of the metal wherein the holographic image may be transferred to such coating that is similar to image transfer to credit cards or the like, although with less clarity of the image as compared with transfer of images into bare metal (Col. 10, lines 53-58; Claim 12.) Schaefer et al further teach that the holographic image may be produced by a rolling process between a pair of rollers, one of which is a print roll, or by a pressing or stamping process utilizing a die (Col. 10, lines 1-22.) Schaefer et al also note that the combination of a holographic image and decorative coatings on a can produces an extremely attractive can wherein the decorative coatings may be applied to the surface of the can which does not include the hologram or may also be applied over all or part of the hologram (Col. 9, lines 9-15.)

8. Claims 38, 47-51, 59 and 68-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaefer et al in view of Mallik et al (USPN 5,085,514) for the reasons recited in a previous office action and restated below, wherein it would have been obvious to one having ordinary skill in the art to utilize routine experimentation to determine the optimum resin layer thickness to utilize based on the desired diffraction pattern to be embossed given that it would have been obvious to one skilled in the art that the resin layer would need to be of sufficient thickness to hold the entire embossed pattern desired for a particular end use and wherein the holographic image would be stable over a period of at least 12 months.

The teachings of Schaefer et al are discussed above. Further, though Schaefer et al teach that the holograph embossing process can be used in conjunction with decorative coatings to provide an extremely attractive can, Schaefer et al do not specifically teach that the can is coated

with a colored layer on the surface of the can prior to coating with the embossing resin. However, the use of colored layers applied directly on the surface of the aluminum can to produce decorated aluminum cans is well known and conventional in the art to provide desired product information or desired decorative designs. Further, the use of holographic images over printed or decorative coatings on substrates (*colored print layer in between the substrate and the surface relief*) to provide tamper-proof and/or extremely attractive products is well known and conventional in the art as evidenced by Mallik et al (Col. 5, lines 15-24) and would have been obvious to one having ordinary skill in the art based on the desired end use and desired decorative pattern of the end product taught by Schaefer et al.

9. Claims 41-42, 45, 58, and 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schaefer et al in view of Mallik et al for the reasons recited in a previous office action and restated below.

The teachings of Schaefer et al are discussed above. Schaefer et al teach that a thin coating of polymer such as polyester may be used on the surface of the metal wherein the holographic image may be transferred to such coating that is similar to image transfer to credit cards or the like, although with less clarity of the image as compared with transfer of images into bare metal. However, Mallik et al teach that after embossing the desired surface relief to form the hologram in a resin layer on a substrate, a hologram is usually subjected to at least one further process step by coating the embossed substrate with a reflective material, usually aluminum, so that the holograph images can be observed in light reflected from the individual cast replicas (Col. 5, lines 4-11.) Further Mallik et al teach that the metallized surface relief

pattern may be provided with a protective, transparent coating layer to protect the metallized layer (Col. 5, lines 11-14.) Mallik et al also teach that the holographic resin layer may be further painted with a clear or colored paint onto the holographic surface in a graphical pattern wherein the paint eliminates light refraction by the holographic microstructure in those regions covered by the paint and thus, both the optical information of the surface relief pattern and the paint graphics may be viewed (Col. 2, lines 50-61.) Therefore, it would have been obvious to one having ordinary skill in the art to include a metallized layer and/or transparent protective coating layer and/or a clear or colored paint layer as taught by Mallik et al to enhance the holographic image based on a particular end use of the invention taught by Schaefer et al.

10. Claims 36-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miekka et al (USPN 4,913,858) in view of Formosa (USPN 5,825,475) and in further view of Mallik et al for the reasons recited in a previous office action and restated below, wherein Miekka et al specifically teach that an object of the invention is to eliminate the need for a large number of preheated rolls in order to control film temperature and accomplish the desired embossment **without plastic film distortion** (Col. 1, line 35-Col. 2, line 1; Col. 2, lines 19-22) and hence the Examiner takes the position that the embossed plastic layer taught by Miekka et al is stable over a period of 12 months given that it is embossed to hold a diffraction or holographic pattern without film distortion.

Miekka et al teach a method of embossing a coated sheet with a diffraction or holographic pattern (Abstract.) The embossing member transfers an embossment pattern by stamping the pattern into a softened coating on a sheeting substrate whereby the embossing

member may be in the form of a roll, rollers, belt or platen (Col. 2, lines 58-63; Figures 6-8.) The coating is a thermosensitive material such as polyethylene, polystyrene, polyvinylchloride and styrene butadiene like thermoplastics or semicured thermosets which have discernible thermoplastic properties (Col. 2, lines 36-42.) Miekka et al teach that the invention can be used for application of diffraction gratings and holographic interference patterns (Col. 3, lines 22-24.) In addition, the coating surface can be metallized (Col. 3, lines 24-25.) In a method of high-speed embossing of a thermoplastic surface coated on a heat-resistant plastic substrate such as polyethylene terephalate coated with polyvinylchloride, the thermoplastic can have opposed surfaces of which the surface away from a film is embossed and the surface facing the film is metallized (Col. 3, lines 27-37; Col. 4, lines 3-15.) The embossed thermoplastic surface can also be directly metallized (*equivalent to a metal layer which substantially conforms to the replicated surface relief*) (Col. 4, lines 20-21.) The thermoplastic coating thickness advantageously is between about 1.5 microns and about 50 microns (Col. 4, lines 66-67.) The embossing pattern can, in parts, be filled in with coating material, such as ink or clear lacquer, in those areas where no embossed decoration is desired (Col. 6, lines 54-57.) In one procedure, solid opaque or tinted colors can be embossed directly to produce a brilliant diffraction pattern and to give the luster and effect of metallization without actual metallization (Col. 8, lines 45-54.) Miekka et al teach another embodiment (Figure 10) comprising a metallic layer 13 with a clear overcoat structure formed by the heat-resistant film 110 and coating 12k whereby the coating is diffraction embossed (Col. 8, lines 54-60.) A variation of this embodiment is to have the metallic layer 13 sandwiched between the heat-resistant film 110 and the thermoplastic coating 12k (Col. 8, lines 60-63.) In addition, when the embossing pattern is in the coating, it is possible to control the

pattern at will by simply overcoating in accordance with a desired pattern that has a same, or nearly the same (*equivalent to different*) refractive index as the embossed coating because the overcoated areas then are now devoid of the embossment and this permits control over the embossing pattern in a very simple way without requiring a change in the basic embossment that is used with **metallic films** (Col. 9, lines 3-9.) Though Miekka et al provide an illustration of one embodiment wherein the embossed coating is held by a **metallic film** (Figure 10) and though Miekka et al refers to embossing using **metallic films**, Miekka et al does not specifically teach that the metallic layer 13 or metallic film as shown in Figure 10 is a "**bearing**" metal substrate. However, Miekka et al specifically teach that the embossing process may be utilized with paper substrates or **other substrates** (Abstract) and hence, given that it is well known in the art that conventional substrate material in which a hologram can be recorded includes substrates backed with paper or metal as taught by Formosa (Col. 3, lines 18-20), it would have been obvious to one having ordinary skill in the art to utilize a "bearing" metal substrate or any other substrate material based on the desired end use of the embossed product. Miekka et al also do not specifically teach that the metallized layer is formed of aluminum or silver, gold, titanium dioxide or zirconium dioxide however, the use of aluminum is well known and conventional to those skilled in the art as a preferred metal in a metallization process and in the production of embossing holograms as taught by Mallik et al (Col. 5, lines 8-9), and hence, would have been an obvious metal to utilize for the production of the metallized layer in the invention taught by Miekka et al. Further, though Miekka et al teach that there are widespread applications for embossed plastic films with holographic patterns such as application where security sensitive items such as holographic labels are used (Col. 1, lines 29-34) and that colored layers may be

utilized with the holographic pattern, Miekka et al do not specifically teach that the substrate is first printed or coated with a colored layer prior to applying the embossing resin or that the embossed substrate forms a container. However, the use of holographic images over printed or decorative coatings on substrates to provide tamper-proof and/or extremely attractive products is well known and conventional in the art as evidenced by Mallik et al (Col. 5, lines 15-24) and further, the use of holographic images on food or non-food containers is well known to provide decorative or tamper-proof properties to the containers, and hence it would have been obvious to one having ordinary skill in the art based on the desired end use and desired decorative pattern of the invention taught by Miekka et al.

Response to Arguments

11. Applicant's arguments filed 10/1/02 with regards to Wolf are not persuasive given that Wolf specifically teaches that an appropriate design or surface texture may be embossed or engraved on the surfaces to be in contact with the dough (*object comprising a surface so as to change surface properties of the first layer of non-metallic material*) and that the dough is baked while pressed between the two plates to provide a baked cracker with the desired shape or **texture corresponding to the textured surface of the plate(s)** (*replicated surface relief.*) Hence, the Examiner takes the position that the baked cracker with the desired texture corresponds to the replicated surface relief stable over a period of 12 months as instantly claimed. With regards to the other references, the Applicant argues that the prior art references do not teach a replicated surface relief that is stable over a period of at least 12 months and further refers to prior responses wherein the Applicant argued alleged differences between the

instant invention and the utilized prior art. However, the Applicant's arguments regarding the stability of the replicated surface relief have been addressed above in each of the rejections wherein the Examiner has taken the position that the replicated surface relief patterns of the prior art references are in fact stable over a period as instantly recited. In terms of Applicant's previous arguments with regards to the alleged differences between the instant invention and the utilized prior art, the Examiner maintains that the instantly claimed invention is drafted in open language and hence does not exclude additional steps to produce the permanent surface relief, such as embossing into a heated or non-cured layer requires pre-heating of the layer and/or a subsequent curing. Further, though the Applicant has stated that the limitation "at room temperature" has been added into the claims, it is noted that the amended claims presented in the amendment filed 10/1/02 do not include such limitation.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R Jackson whose telephone number is 703-308-0428. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

mrj
December 13, 2002

Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700